



SLOTTED LINER SAND CONTROL SOLUTION

SIAO PETROLEO SA

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With over 20 years of experience, Siao Petroleo has extensive expertise in the design and manufacturing of innovative equipment for the industry.

Siao's administrative headquarters are located in Serra, ES, Brazil. We have two technology and manufacturing plants in Serra, ES: our newly sand control operations are housed in a **133,000** square foot facility and our metalworking operations located in a **117,000** sq ft facility.

Siao's STIS manufacturing plant is housed in a **215,000** sq ft facility in Fundao, ES, features state-of-the-art machining centers, welding and painting shops.

Siao prides itself on being an honest company, who believe in hard work and hold strong social and ethical values.

EXPERIENCE IN **HUNDREDS** OF WELLS

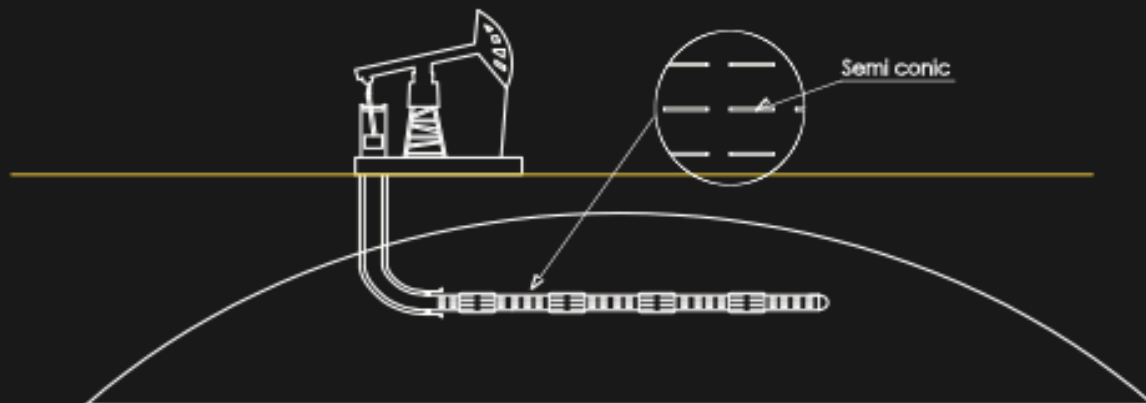
ACTIVE IN **OMAN** AND **CANADA**



SLOTTED LINER

Industry pioneer in laser cut slotted liner technology, Siao provides sand control solutions since 2001 for onshore and offshore applications. Our pipe diameter size and metallurgic options are unlimited. Such versatility and our reliable patented process makes Siao the optimized option.

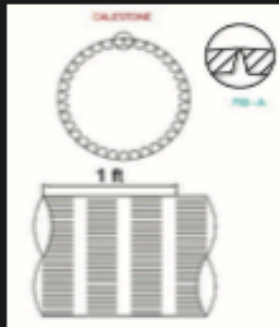
We utilize high precision laser beams in order to make the necessary incisions into our sand control system. This allows the tube to be highly effective in filtering debris with far less impact on the tube structural characteristics than conventional methods.



SLOTTED LINER

Siao was the first company in the world to use high precision lasers to make sand control components. Our high precision lasers are managed with total quality management software tools to ensure the highest performance. Our patented semi conic cut has a first layer to filter particles and resist to abrasion and at the same time its shape reduces the pressure drop facilitating the oil flow to the inner side of the pipe.

Disc Cut



Siao Patented Cut



Increased Resistance to abrasion

Decrease Clogging Index

Patent Number PI 0400812-0

MORE THAN 450 WELLS WITH SIAO SLOTTED LINER OPERATING FOR DECADES

TECHNICAL SPECIFICATION

Open Flow Area: 1.5 to 3%;

Material: J55, N80, L80, P110, Super 13Cr, 22Cr, Alloy 625;

Outer diameter: 2 3/8" to 9 5/8";

Slot's length: from 38mm to 100mm;

Slot's width: from 0.20mm to 6.35mm;

Collapse resistance: usually 75% of the tube original resistance;

Torsion resistance: usually 80% of the tube original resistance.



SLOTTED LINER

DISTRIBUTED SYSTEM

SIAO developed a numerical methodology for computational simulation of flow in horizontal wells. The absence of uniformity in the production flow along the horizontal well may cause a water or gas breakthrough in the short term. This phenomenon overload surface separation and at a certain level can lead to well abandon.

The main advantage of distributed slot density approach developed by SIAO is to lower the drawdown and optimize production profile. Reducing operator risks and increasing well production life.



Siao Slotted Liner offer an advantage in providing a variable slot density that can be used to optimize inflow or outflow distributions!

ALBACORA FIELD - OFFSHORE SIAO SLOTTED LINER DEPLOYMENT

Albacora East Oil Field is located in the Campos Basin, Brazil. Production started in 2006 with P-50, the largest floating unit at the time, producing up to 180,000 barrels per day, capacity to compress 6 million cubic meters of natural gas and store 1.6 million barrels of oil.

In this very challenging scenario, Siao were invited to supply Petrobras with 5km of Inconel 625 Slotted Liners.





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